LETTERS TO THE EDITORS

Regarding "Fact and fiction surrounding the discovery of the venous valves"

To the Editors:

Scultetus and his colleagues (J Vasc Surg 2001;33:435-41) described the controversy surrounding the discovery of the venous valves (VVs) reviewing medical literature from 1545. Their conclusions pointed out Charles Estienne as the first who described VVs in 1545.

One year before *De Dissectione Partium Corporis Umani Libri Tres* of Estienne, the Spanish anatomist Ludovicus Vassaeus mentioned VVs and furnished a clear description of their functional implications.[1]

The work of Vassaeus was entitled *De Anatomen Corporis Humani tabulae quator* and was published by Valgrisi (Venice) in 1544. The anatomy of the cardiovascular system was so well depicted by Vassaeus that Marie Jean Pierre Florens[2] (1857) affirmed that he described the blood circulation a century before William Harvey (1628).

If it is important to establish who was the first to describe VVs (and blood circulation), the work of Vassaeus has to be taken into consideration. More than VVs and the anatomical basis of blood circulation, Ludovicus Vasseus also treated the argument of thrombosis. His contribution consisted in identifying the process of vascular "dessication" described by Hippocrates with the phenomena of "coagulation" (ie, loss of the liquid state of the blood).[3]

Ludovicus Vassaeus is not a well-known author, but he is quoted by Littré, Osler, Durling, Hirsch, and Wellcome. The Bibliotheca Walleriana owns the work of Vassaeus (#9918). In the past, his name has been reported also as Vasi, Vassé, and La Vasseur. A curiosity: in Italian, the word *vasi* means vessels.

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24/41/116101
doi:10.1067/mva.2001.116101

Reply

We are grateful to Drs Caggiati and Bertocchi for bringing Vassaeus to the attention of the readers of the *Journal of Vascular Surgery*. We have not seen the 1544 Venice edition of his work. Leibowitz cites a 1540 edition. However, we cannot find other references to it in the published library catalog available to us. There were several later editions under the name Vassé. Erik Waller was a distinguished collector. His books, now at Uppsala, are a great resource, one, unfortunately, we cannot easily access.

On page 436 of our publication, we state that "Charles Estienne first mentioned the venous valves in 1539 in his famous book *De Dissectione Partium Corporis Humani Libri Tres*. Even if his book was not published until 1545, his observation of the venous valves in 1539 was recorded in a handwritten draft. This observation was at least contemporaneous, if not earlier, than Vassaeus' description. Even more important, with the addition of Vassaeus to the list of anatomists who described the venous valves, we fully expect that time and the research of other scholars may reveal still more anatomists, stressing the point we try to make: innovation is not the work of one person. The progress in science is the accomplishment of several investigators. Fabricius ab Aquapendente got the credit, but he did not work alone. We now know of at least one more person who helped.

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24/41/116102
doi:10.1067/mva.2001.116102

Regarding "Aneurysm sac pressure measurements after endovascular repair of abdominal aortic aneurysms"

To the Editors:

We read with interest the article by Baum et al entitled "Aneurysm sac pressure measurements after endovascular repair of abdominal aortic aneurysms," which objectively demonstrates the relation between endoleak and elevated sac pressure.[1] Seventeen patients with endoleak showed arterial waveforms and elevated pressure. The authors also report elevated pressure in four patients without any demonstrable endoleak. Two of these patients underwent CT angiography 30 hours after the implant procedure. However, it is not clear from this paper how these four patients were selected for perioperative pressure measurement. Were they selected randomly, or did they present a high risk of failure or endoleak? If they were randomly selected, it may suggest a very high rate of endotension that raises concern about the effectiveness of the endovascular repair "although the number of patients was limited." Two of these patients underwent CT angiography without evidence of endoleak. However, there is no precision about the CT angiography technique used by the authors. Did the authors perform a biphasic helical CT with delayed phase? CT angiography obtained at the arterial phase (optimal aortic opacification) may fail to demonstrate a low flow or type 2 endoleak. Delayed acquisition obtained 10 to 15 seconds after termination of the arterial phase is reported to increase the accuracy of CT angiography for the detection of endoleak by up to 11%.[2] The timing is also very important for endoleak demonstration in the delayed phase. If the delayed phase is obtained several minutes after contrast media injection, the contrast can be completely diluted. Although endotension is a real issue in endovascular management of AAA, aneurysmal diameter increase without "CT angiography evidence of endoleak" may be related to incomplete imaging evaluation.

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